THE ECONOMICS OF HONEY PRODUCTION

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THE ECONOMICS OF HONEY PRODUCTION IN ALBERTA 1990

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FOREWORD

Bee-keeping is an important enterprise in Alberta Agriculture's diversification strategy. It contributed almost $13.8 million to the agricultural economy in 1990. The Production Economics Branch monitors bee-keeping returns and costs to keep producers, policy makers and the industry up-to-date on the economic performance of apiaries across the province. Results of these surveys are used in a variety of policy and program initiatives. Equally important, study participants as well as producers are encouraged to compare the performance of their bee-keeping operation with the related group average for their area to help improve the economic performance of their bee-keeping business.

CARLYLE ROSS
Branch Head
Production Economics Branch

SECTION I

Introduction

The Production Economics Branch (PEB) has been monitoring the costs and returns of livestock and crop production in the province in an extensive way since the 1960's. These studies have been viewed as an important tool for assisting producers in their cropping decisions as well as for developing policies and programs for the different farm enterprises in the province and Canada. Where information gaps existed in other provinces, results from these studies have served as the basis to fill those gaps.

The PEB has been monitoring production costs and returns for the beekeeping (honey production) sector of the agriculture industry since the early 1970's. The 1990 Costs and Returns Study is a continuing effort to monitor honey production in the province. The information presented in the following pages will be used for a variety of reasons including Tripartite negotiations. It would also assist the individual study participants to compare their costs and returns with the group averages to develop/manage their operations better.

Objectives of The Study

Following are the objectives of this study:

1. To determine production costs and returns associated with beekeeping.

2. To establish physical input/output relationships in beekeeping.

3. To provide each study participant with a detailed analysis of his/her beekeeping operation and an opportunity to compare the operation with the group average.

4. To document how variation in size of operation affects net returns.

5. To observe regional differences in costs and returns for beekeeping.

6. To provide an up-to-date economic report on beekeeping to assist governments in developing programs and policies for this industry.

The Study Sample

A total of 29 beekeepers were randomly selected to obtain production costs and returns data for the 1990 production year. Of this sample, two apiarists were relatively small (hobbyists) and could not provide the required data. Therefore, these two participants were not included in developing group averages. The results presented in the study are based on 27 beekeepers across the province. Regional breakdown of the sample is:

Group	Region	Number of Participants	Average Number of Hives
I	Southern (1) South-Central (2) North-Central (3)	10	474
II	North-East (4) North-West (5)	8	975
III	Peace River (6)	9	747
	TOTAL	27	

The study sample was further divided into the following four groups by size of operation.

Group	Size of Operation	Number of Participants	Average Number of Hives
IV	Up to 300 hives	7	163
V	301 to 600 hives	8	448
VI	601 to 1000 hives	6	762
VII	Over 1000 hives	6	1678

SECTION II

Method of Analysis

The raw data obtained from study participants was reviewed for information gaps before entering into the computer for analysis. Individual analyses and group averages (by region and size of operation) were completed using the farm business enterprise analysis program.

Honey Production in Alberta

Honey production in Alberta has widely fluctuated during the last six decades. The number of beekeepers in the province has ranged from a low of 840 in 1990 to 2,000 in 1975. Over the last decade, the number of apiarists has steadily declined from 1800 in 1980 to about 840 in 1990, a decrease of about 53 per cent. The number of colonies during the last two decades has also fluctuated considerably; i.e. ranging from 11,000 in 1970 to 193,000 in 1987. A historical summary of the number of beekeepers, colonies, production per colony and price of honey in Alberta is presented in Table 1.

Computation of Costs and Returns

Costs and returns data presented in this report were weighted by the number of hives. For various group analyses (regions and by size of operation) costs were calculated on a per hive and per pound basis by dividing the sum of all expenses by the number of hives in that particular group. In a few cases certain costs were not incurred in an individual operation, therefore, cost per unit for different inputs were averaged to determine the cost per hive and per pound of honey produced.

A. Total Value of Production:

Total value of production is based on:

- Bulk honey sales;
- consumer pack sales;
- other honey sales;
- honey held in inventory;

TABLE 1: HISTORICAL DATA ON HONEY PRODUCTION IN ALBERTA, 1970–90

Year	Number Of Beekeepers	Number Of Colonies	Colonies Per Apiary	Production Per Colony(lbs.)	Price Per Pound (¢)
1970	1,200	110,000	92	184	14.0
1971	1,200	115,000	96	196	20.0
1972	1,200	130,000	108	154	31.0
1973	1,300	145,000	112	150	46.0
1974	1,800	156,000	87	149	46.0
1975	2,000	158,000	79	128	39.9
1976	2,000	160,000	80	88	37.2
1977	1,800	165,000	92	130	43.1
1978	1,800	160,000	89	125	50.8
1979	1,700	150,000	88	150	57.2
1980	1,800	160,000	89	141	58.1
1981	1,700	170,000	100	116	64.4
1982	1,650	174,000	105	105	62.2
1983	1,610	172,000	107	145	59.9
1984	1,600	180,000	112	154	48.5
1985	1,700	170,000	100	108	56.3
1986	1,700	190,000	112	126	59.9
1987	1,480	193,000	130	132	41.7
1988	1,140	150,000	132	154	39.9
1989	855	143,500	168	119	49.0
1990	840	152,000	181	154	58.1

Source: Agriculture Statistics Yearbook, Statistics Branch, Alberta Agriculture, 1971 to 1990, Edmonton, Alberta.

- Wax sales;
- Pollen sales;
- Crop insurance receipts;
- Miscellaneous income (any program payments); and
- Less honey purchase of resale.

The study participants were asked to provide actual sales and an estimate of expected price for any honey held in inventory and/or any other stock.

B. Cash Costs:

Most of the inputs used in honey production were purchased during the production year and recorded as such in the year-end statement. The study participants were asked to provide estimates for those costs for which actual records were not available, i.e., an inventory carried from last year. In 1990, the average hourly wage for hired labour was $6.74 per hour. Operating interest was the actual amount paid by the study participants.

Operator's and Family Labour:

Operator's and family labour were valued at $7.50 and $5.00 per hour, respectively. The study participants were asked to provide estimates of hours spent by their family and themselves.

C. Capital Costs:

Capital costs included depreciation on buildings, bee equipment, and vehicles, etc. Capital interest was the actual amount paid by the study participants for capital purchases.

D. Management Indicators

Management indicators presented at the bottom of various tables show return over cash costs, return to equity and investment. These indicators exhibit profit margins and economic viability of honey production by regions and size of operation.

SECTION III

Honey Production Costs and Returns in Alberta

The results presented in Table 2 are based on data provided by 27 beekeepers across the province. In 1990, honey produced for sale by an average study participant was 138,529 pounds, of which 118,630 pounds were sold as bulk honey. Consumer pack sales and other honey sales were 2,885 and 4,029 pounds, respectively. Honey held in inventory amounted to 12,984 pounds during the 1990 honey production year. Average yield per hive was 181 pounds for the 717 hives in production. Details on honey, wax and pollen sales and other income are given in Table 2.

Total value of production, including insurance receipts and payments under other government programs amounted to $81,859 per average honey producer with 717 hives or $114 per hive ($0.63 per pound).

Cash Costs:

Cash costs include all out–of–pocket costs which amounted to $53,731 per average study participants in 1990. In terms of cash costs per hive, the average amount was $75 per hive ($0.41 per pound). Because of the producers' interest in knowing their cash costs for each basic unit of production, these costs were broken into as much detail as possible. The most significant inputs which make up major portions of cash costs are hired labour, feed–sugar, and machine fuel and repairs.

The study participants were asked to estimate time spent by their family members and themselves in regards to the honey operation. The time spent by the operator was valued at $7.50 per hour and $5.00 per hour for a family member(s). When operator and family labour charges were added to cash costs, the total variable cost amounted to $68,771 per average study participant and $96 per hive, or $0.53 per pound of honey produced.

Capital Costs:

Capital costs are comprised of depreciation for buildings, bee equipment, vehicles and capital interest paid. Average total capital cost amounted to $20,297, or $28 per hive ($0.16 per pound) per study participant.

TABLE 2
HONEY PRODUCTION COSTS AND RETURNS
ALBERTA, 1990

	NUMBER OF HIVES		717.30	
	AVERAGE YIELD PER HIVE (LBS)		181.17	
	POUNDS HONEY PRODUCED		129953.19	
			TOTAL	PER HIVE	PER POUND PRODUCED
			---------- $ ----------	
	BULK HONEY SALES	112830.12 lbs.	60281.70	84.04	
	CONSUMER PACK SALES	2885.41 lbs.	2616.48	3.65	
	OTHER HONEY SALES	1253.52 lbs.	806.28	1.12	
	HONEY HELD IN INVENTORY	12984.14 lbs.	7968.20	11.11	
	WAX SALES		1890.77	2.64	
	POLLEN SALES		758.46	1.06	
	CROP INSURANCE RECEIPTS		5269.27	7.35	
	MISCELLANEOUS INCOME		3900.56	5.44	
	less HONEY PURCHASE FOR RESALE (-)		1632.59	2.28	
A.	TOTAL VALUE OF PRODUCTION		81859.06	114.12	0.63
B.	CASH COSTS:				
	BEE PURCHASE - (Package Bees)				
	BEE PURCHASE - (Queens)		1427.02	1.99	
	FREIGHT		354.04	0.49	
	FEED - Sugar	32263.26 lbs.	10538.14	14.69	
	MEDICINE/ICING SUGAR		790.56	1.10	
	CYANOGAS/BEE REPELLENT		247.85	0.35	
	BLDG./EQUIP. REPAIR & MAINT.		2516.52	3.51	
	BLDG./EQUIP. INSURANCE		1908.22	2.66	
	HEATING FUEL		693.83	0.97	
	UTILITIES		1757.89	2.45	
	MACHINE FUEL/REPAIRS		6176.85	8.61	
	VEHICLE INSURANCE/REGISTRATION		891.37	1.24	
	OTHER INSURANCE - Product		331.33	0.46	
	- Crop		2126.89	2.97	
	PROPERTY AND BUSINESS TAX		296.65	0.41	
	LABELS/TAGS/CONTAINERS		576.56	0.80	
	SMALL TOOLS/H'WARE/OFF. SUPPLIES		3370.48	4.70	
	PROMOTION/MKTG./ASSOC. FEES		1107.96	1.54	
	ACCOUNTING/LEGAL		868.59	1.21	
	FORAGE ACCESS		647.30	0.90	
	CUSTOM WORK/LEASES		697.07	0.97	
	HIRED LABOUR	2099.74 hours	14156.89	19.74	
	MISCELLANEOUS		870.04	1.21	
	OPERATING INTEREST PAID		1378.67	1.92	
	TOTAL CASH COSTS		53730.70	74.91	0.41
	PLUS:				
	OPERATOR LABOUR	1816.37 hours	13622.78	18.99	
	FAMILY LABOUR	283.52 hours	1417.59	1.98	
	TOTAL VARIABLE COST		68771.06	95.88	0.53
C.	CAPITAL COSTS :				
	DEPRECIATION - Buildings		4051.14	5.65	
	- Bee Equipment		8755.51	12.21	
	- Vehicles		2338.47	3.26	
	CAPITAL INTEREST PAID		5152.29	7.18	
	TOTAL CAPITAL COST		20297.43	28.30	0.16
	TOTAL PRODUCTION COST		89068.19	124.17	0.69
D.	MANAGEMENT INDICATORS:				
	RETURN OVER CASH COSTS		28128.63	39.21	
	RETURN TO EQUITY		-7209.16	-10.05	
	RETURN TO INVESTMENT		-2056.87	-2.87	

Total Production Cost:

Average total production cost was estimated at $89,068 for a honey operation with 717 hives. Average production cost per hive or per pound of honey produced was $124 or $0.69, respectively. Details on total production costs for an average study participant are presented in Table 2.

Management Indicators:

When total cash costs were deducted from the value of production, the average honey operation showed a return of $28,129 per study participant or $39 per hive ($0.22 per pound). Return to equity and investment was negative by $10 and $3 per hive, respectively.

Investment Costs:

Investment costs were divided into four categories, namely land, buildings, bee equipment, and machinery (includes vehicles). The study participants were asked to provide market value of land, buildings, bee equipment, and machinery to estimate total investment and depreciation for an average beekeeping operation. Actual interest paid on capital was used to arrive at total capital cost which also includes depreciation for buildings, bee equipment, and vehicles.

For the study sample, land associated with the beekeeping operation was about eight acres, valued at $5,300 or $685 per acre. Building investment for a 717 bee hive operation was $81,023 or $113 per hive. Honey equipment investment for the study sample (27 participants) was estimated at $131,700 per average operation or $184 per hive. Machinery (automotives) investment was based on the percentage use of vehicles for the honey operation. This investment was estimated at $20,335 or $28 per hive in 1990. When all of the investment cost items were added together, the total investment stood at $238,358 per average beekeeping operation or $332 per hive. Details on land, buildings, bee equipment and machinery investment are presented in Table 3.

Honey Production Costs and Returns by Regions

The study sample was divided into three groups; i.e. Southern, South-Central, and North-Central; North-Eastern and North-West; and Peace River. The Southern and South-Central regions had only four study participants which were combined with the sample from North-Central region, thus bringing the total number to 10 for Group I. Group II includes

TABLE 3
ENTERPRISE INVESTMENT
ALBERTA, 1990

INVESTMENT ITEMS:

		TOTAL	PER HIVE
		------- $	-------
LAND	7.74 acres	5300.36	7.39
BUILDINGS		81023.31	112.96
BEE EQUIPMENT		131700.19	183.61
MACHINERY		20334.52	28.35
TOTAL INVESTMENT		238358.37	332.30
TOTAL EQUITY	74.81 %	178326.06	248.61

BREAK-DOWN OF INVESTMENT:

	ENTERPRISE VALUE ($)	AGE (YEARS)	DEPRECIATION ($)
Land	5300.36	---	---
SUB-TOTAL	5300.36	---	---
Building #1	43358.33	11.61	2167.91
Building #2	10952.41	11.00	547.62
Building #3	3086.70	16.57	154.33
Building #4 - Wintering	7211.11	7.15	360.55
Building #5 - House (25 %)	16414.81	12.52	820.74
SUB-TOTAL	81023.31		4051.14
Hives	74030.31	11.59	3701.50
Pallet	2619.26	5.58	301.21
Fork-Lift	8337.04	8.63	708.65
Hive-Feeder	4556.79	5.75	911.36
Super Elevator	166.67	13.68	8.33
Uncapping Machine	2804.48	7.33	140.22
Honey Extractor	5426.93	10.73	271.34
Dryer/Heat Exchanger	142.59	12.23	7.13
Wax Spinner/Seperator	2514.04	8.83	125.70
Pump & Motor	1380.15	10.02	158.72
Honey Tank/Pipe	1973.89	13.63	98.69
Feed Tank	883.59	6.85	44.18
Storage Vessel	753.70	5.42	37.69
Boiler Furnace	1101.67	5.65	55.08
Water System	1274.26	7.55	63.71
Compressor	325.00	6.45	16.25
Pressure Washer	239.48	4.22	27.54
Fuel Tank	652.59	11.27	32.63
Blower	658.30	5.21	32.91
Scale	630.89	9.92	31.54
Barrel	1530.52	4.14	76.53
Barrel Loader	301.67	7.10	15.08
Cart	321.63	11.79	16.08
Fencer/Shocker	1440.67	7.58	72.03
Shop Tool	3581.74	8.92	411.90
Stapler	673.07	8.15	33.65
Office Equipment	1272.59	6.30	63.63
Lawn-mower	1113.63	6.81	128.07
Over-wintering Insulation	4096.59	6.10	819.32
Miscellaneous	6896.44	11.54	344.82
SUB-TOTAL	131700.19		8755.51
Vehicle #1	7361.48	7.93	846.57
Vehicle #2	4865.55	8.04	559.54
Vehicle #3	5638.89	8.75	648.47
Vehicle #4	2468.59	6.44	283.89
SUB-TOTAL	20334.52		2338.47
TOTAL INVESTMENT	238358.37		15145.14

North–Eastern and North–Western regions for which the sample size was eight. The sample size for Group III or Peace River region was nine. As mentioned earlier, two surveys or completed questionnaires for North–Central region were not included in group averages because of incomplete data provided by the participants.

Group I (Southern, South–Central and North–Central Regions):

The results presented in Table 4 are based on the averages for ten study participants. Average size of the beekeeping operation was 474 hives and yield per hive for this group was 150 pounds, thus producing over 71,292 pounds of marketable honey. Total value of production including insurance receipts and miscellaneous income was $44,740 per average beekeeper or $94 per hive ($0.63 per pound).

Average total cash costs for this group amounted to $68 per hive or $0.45 per pound of honey produced. When operator and family labour, and capital costs were added to cash costs, the average total production cost for the ten beekeepers was $60,982 and $129 per hive or $0.86 per pound of honey produced.

Details on total value of production, cash costs, total variable cost, capital costs and total production cost for Group I participants are given in Table 4. Average total investment for land, buildings, bee equipment, and machinery for this group of honey producers is presented in Table 5.

Group II (North–Eastern and North–Western):

Information presented in Table 6 is based on the averages of eight study participants. On an average, the number of hives for this group was 975 with average yield being 187 pounds per hive.

Average total value of production for this group was $111 per hive or $0.59 per pound of honey produced. Cash costs for Group II amounted to $60 per hive or $0.32 per pound. When all costs (operator, family labour and capital costs) were added together, the average total production cost was $101 per hive or $0.54 per pound of honey produced. This group of participants showed higher return over cash costs compared to the other two groups. Details on costs and returns for Group II study participants are shown in Table 6.

TABLE 4
HONEY PRODUCTION COSTS AND RETURNS
SOUTHERN, SOUTH CENTRAL AND NORTH CENTRAL REGIONS
1990

	NUMBER OF HIVES		474.30	
	AVERAGE YIELD PER HIVE (LBS)		150.31	
	POUNDS HONEY PRODUCED		71291.87	
			TOTAL	PER HIVE	PER POUND PRODUCED
			---------- $ ----------		
	BULK HONEY SALES	63204.00 lbs.	33506.11	70.64	
	CONSUMER PACK SALES	4652.30 lbs.	4535.65	9.56	
	OTHER HONEY SALES	257.00 lbs.	219.20	0.46	
	HONEY HELD IN INVENTORY	3178.60 lbs.	1974.04	4.16	
	WAX SALES		869.80	1.83	
	POLLEN SALES		75.00	0.16	
	CROP INSURANCE RECEIPTS		3606.90	7.60	
	MISCELLANEOUS INCOME		2953.20	6.23	
	less HONEY PURCHASE FOR RESALE (-)		3000.00	6.33	
A.	TOTAL VALUE OF PRODUCTION		44739.89	94.33	0.63
B.	CASH COSTS:				
	BEE PURCHASE - (Package Bees)				
	BEE PURCHASE - (Queens)		656.55	1.38	
	FREIGHT				
	FEED - Sugar	19741.00 lbs.	6035.00	12.72	
	MEDICINE/ICING SUGAR		166.30	0.35	
	CYANOGAS/BEE REPELLENT		538.40	1.14	
	BLDG./EQUIP. REPAIR & MAINT.		869.10	1.83	
	BLDG./EQUIP. INSURANCE		2335.40	4.92	
	HEATING FUEL		393.35	0.83	
	UTILITIES		1396.90	2.95	
	MACHINE FUEL/REPAIRS		6119.20	12.90	
	VEHICLE INSURANCE/REGISTRATION		737.70	1.56	
	OTHER INSURANCE - Product		277.30	0.58	
	- Crop		734.60	1.55	
	PROPERTY AND BUSINESS TAX		189.35	0.40	
	LABELS/TAGS/CONTAINERS		883.90	1.86	
	SMALL TOOLS/H'WARE/OFF. SUPPLIES		3487.00	7.35	
	PROMOTION/MKTG./ASSOC. FEES		705.50	1.49	
	ACCOUNTING/LEGAL		915.50	1.93	
	FORAGE ACCESS		463.80	0.98	
	CUSTOM WORK/LEASES		379.40	0.80	
	HIRED LABOUR	504.70 hours	2985.40	6.29	
	MISCELLANEOUS		404.00	0.85	
	OPERATING INTEREST PAID		1348.80	2.84	
	TOTAL CASH COSTS		32022.45	67.52	0.45
	PLUS:				
	OPERATOR LABOUR	1477.90 hours	11084.25	23.37	
	FAMILY LABOUR	268.00 hours	1340.00	2.83	
	TOTAL VARIABLE COST		44446.70	93.71	0.62
C.	CAPITAL COSTS :				
	DEPRECIATION - Buildings		3567.50	7.52	
	- Bee Equipment		6210.50	13.09	
	- Vehicles		1994.10	4.20	
	CAPITAL INTEREST PAID		4762.80	10.04	
	TOTAL CAPITAL COST		16534.87	34.86	0.23
	TOTAL PRODUCTION COST		60981.57	128.57	0.86
D.	MANAGEMENT INDICATORS:				
	RETURN OVER CASH COSTS		12717.44	26.81	
	RETURN TO EQUITY		-16241.66	-34.24	
	RETURN TO INVESTMENT		-11478.87	-24.20	

TABLE 5
APIARY ENTERPRISE INVESTMENT
SOUTHERN, SOUTH CENTRAL AND NORTH CENTRAL REGIONS
1990

INVESTMENT ITEMS:

		TOTAL	PER HIVE
		------- $	-------
LAND	6.06 acres	6151.50	12.97
BUILDINGS		71350.00	150.43
BEE EQUIPMENT		94880.50	200.04
MACHINERY		17340.00	36.56
TOTAL INVESTMENT		189721.87	400.00
TOTAL EQUITY	66.96 %	127043.56	267.85

BREAK-DOWN OF INVESTMENT:

	ENTERPRISE VALUE ($)	AGE (YEARS)	DEPRECIATION ($)
Land	6151.50	---	---
SUB-TOTAL	6151.50	---	---
Building #1	38760.00	8.91	1938.00
Building #2	12550.00	14.60	627.50
Building #3	1000.00	14.00	50.00
Building #4 - Wintering			
Building #5 - House (25 %)	19040.00	9.15	952.00
SUB-TOTAL	71350.00		3567.50
Hives	50749.50	8.25	2537.47
Pallet	2711.50	3.95	311.82
Fork-Lift	4700.00	2.98	399.50
Hive-Feeder	1815.85	4.06	363.17
Super Elevator	180.00	9.11	9.00
Uncapping Machine	3135.00	8.04	156.75
Honey Extractor	4360.00	10.97	218.00
Dryer/Heat Exchanger	125.00	8.80	6.25
Wax Spinner/Seperator	965.00	6.38	48.25
Pump & Motor	777.50	7.20	89.41
Honey Tank/Pipe	1165.00	9.46	58.25
Feed Tank	595.00	7.38	29.75
Storage Vessel	1320.00	2.62	66.00
Boiler Furnace	2015.00	4.26	100.75
Water System	1295.00	9.52	64.75
Compressor	403.00	6.12	20.15
Pressure Washer	120.00	4.83	13.80
Fuel Tank	540.00	11.30	27.00
Blower	920.00	4.18	46.00
Scale	662.50	11.80	33.12
Barrel	1376.00	7.71	68.80
Barrel Loader	200.00	10.25	10.00
Cart	308.50	8.77	15.42
Fencer/Shocker	475.10	2.00	23.75
Shop Tool	5530.00	5.62	635.95
Stapler	916.00	8.03	45.80
Office Equipment	1335.00	6.93	66.75
Lawn-mower	607.90	8.09	69.91
Over-wintering Insulation	2640.40	6.26	528.08
Miscellaneous	2936.80	8.86	146.84
SUB-TOTAL	94880.50		6210.50
Vehicle #1	6350.00	3.94	730.25
Vehicle #2	4730.00	5.59	543.95
Vehicle #3	4700.00	3.65	540.50
Vehicle #4	1560.00	6.58	179.40
SUB-TOTAL	17340.00		1994.10
TOTAL INVESTMENT	189721.87		11772.08

TABLE 6
HONEY PRODUCTION COSTS AND RETURNS
NORTH EAST AND NORTH WEST REGIONS
1990

	NUMBER OF HIVES		975.00	
	AVERAGE YIELD PER HIVE (LBS)		186.60	
	POUNDS HONEY PRODUCED		181934.81	
			TOTAL	PER HIVE	PER POUND PRODUCED
			---------- $ ----------	
	BULK HONEY SALES	174049.56 lbs.	86283.06	88.50	
	CONSUMER PACK SALES	3170.43 lbs.	2692.21	2.76	
	OTHER HONEY SALES	3454.29 lbs.	2200.94	2.26	
	HONEY HELD IN INVENTORY	1260.57 lbs.	778.71	0.80	
	WAX SALES		2241.07	2.30	
	POLLEN SALES				
	CROP INSURANCE RECEIPTS		10552.86	10.82	
	MISCELLANEOUS INCOME		5396.86	5.54	
	less HONEY PURCHASE FOR RESALE (-)		2011.43	2.06	
A.	TOTAL VALUE OF PRODUCTION		108134.25	110.91	0.59
B.	CASH COSTS:				
	BEE PURCHASE - (Package Bees)				
	BEE PURCHASE - (Queens)		1222.00	1.25	
	FREIGHT		400.00	0.41	
	FEED - Sugar	38644.43 lbs.	11958.57	12.27	
	MEDICINE/ICING SUGAR		1767.57	1.81	
	CYANOGAS/BEE REPELLENT		75.71	0.08	
	BLDG./EQUIP. REPAIR & MAINT.		3370.00	3.46	
	BLDG./EQUIP. INSURANCE		1452.71	1.49	
	HEATING FUEL		404.43	0.41	
	UTILITIES		1411.29	1.45	
	MACHINE FUEL/REPAIRS		6509.00	6.68	
	VEHICLE INSURANCE/REGISTRATION		677.29	0.69	
	OTHER INSURANCE - Product		529.71	0.54	
	- Crop		3509.43	3.60	
	PROPERTY AND BUSINESS TAX		154.71	0.16	
	LABELS/TAGS/CONTAINERS		391.43	0.40	
	SMALL TOOLS/H'WARE/OFF. SUPPLIES		3877.86	3.98	
	PROMOTION/MKTG./ASSOC. FEES		479.14	0.49	
	ACCOUNTING/LEGAL		550.57	0.56	
	FORAGE ACCESS		917.00	0.94	
	CUSTOM WORK/LEASES		603.43	0.62	
	HIRED LABOUR	2131.86 hours	16858.71	17.29	
	MISCELLANEOUS		636.14	0.65	
	OPERATING INTEREST PAID		347.57	0.36	
	TOTAL CASH COSTS		58104.29	59.59	0.32
	PLUS:				
	OPERATOR LABOUR	2275.57 hours	17066.79	17.50	
	FAMILY LABOUR	391.43 hours	1957.14	2.01	
	TOTAL VARIABLE COST		77128.19	79.11	0.42
C.	CAPITAL COSTS :				
	DEPRECIATION - Buildings		4321.64	4.43	
	- Bee Equipment		10841.37	11.12	
	- Vehicles		3047.82	3.13	
	CAPITAL INTEREST PAID		2866.29	2.94	
	TOTAL CAPITAL COST		21077.11	21.62	0.12
	TOTAL PRODUCTION COST		98205.31	100.72	0.54
D.	MANAGEMENT INDICATORS:				
	RETURN OVER CASH COSTS		50029.98	51.31	
	RETURN TO EQUITY		9928.92	10.18	
	RETURN TO INVESTMENT		12795.20	13.12	

Average total investment for land, buildings, bee equipment, and machinery (vehicles) for Group II are given in Table 7.

Group III (Peace River Region):

Nine honey producers provided detailed information on their operations from the Peace River region. Group averages for these study participants resulted in 747 hives per honey producer with an average yield of 192 pounds per hive. Of the three groups, average yield per hive was the highest in the Peace River region. Average total value of honey production for Group III participants was at $127 per hive or $0.66 per pound of honey produced.

Average total cash costs for Group III participants amounted to $96 per hive ($0.50 per pound). Total production cost (cash costs, operator and family labour and capital cost) was almost $150 per hive or $0.78 per pound of honey produced. Return to equity was negative by $23 per hive for the Group III participants. Details on value of production, cash costs, operator and family labour costs, and capital costs are shown in Table 8.

Investment for land, buildings, bee equipment, and machinery (vehicles) for the study participants in the Peace River Region are presented in Table 9. Investment per hive for an average beekeeping operation in Group III amounted to $357 in 1990.

TABLE 7
APIARY ENTERPRISE INVESTMENT
NORTH EAST AND NORTH WEST REGIONS
1990

INVESTMENT ITEMS:

		TOTAL	PER HIVE
		------- $	-------
LAND	6.91 acres	4023.57	4.13
BUILDINGS		86433.00	88.65
BEE EQUIPMENT		161426.81	165.57
MACHINERY		26502.86	27.18
TOTAL INVESTMENT		278386.12	285.52
TOTAL EQUITY	91.59 %	254974.69	261.51

BREAK-DOWN OF INVESTMENT:

	ENTERPRISE VALUE ($)	AGE (YEARS)	DEPRECIATION ($)
Land	4023.57	---	---
SUB-TOTAL	4023.57	---	---
Building #1	53939.29	11.25	2696.96
Building #2	11709.29	4.56	585.46
Building #3	1563.00	21.82	78.15
Building #4 - Wintering	5057.14	7.88	252.86
Building #5 - House (25 %)	14164.29	14.70	708.21
SUB-TOTAL	86433.00		4321.64
Hives	96500.00	14.50	4825.00
Pallet	2250.71	5.85	258.83
Fork-Lift	11628.57	11.31	988.43
Hive-Feeder	7085.71	7.88	1417.14
Super Elevator	357.14	16.78	17.86
Uncapping Machine	2354.43	9.20	117.72
Honey Extractor	6573.86	13.19	328.69
Dryer/Heat Exchanger	214.29	15.40	10.71
Wax Spinner/Seperator	3604.14	10.09	180.21
Pump & Motor	2816.71	13.66	323.92
Honey Tank/Pipe	2917.14	17.88	145.86
Feed Tank	886.71	8.90	44.34
Storage Vessel	935.71	10.64	46.79
Boiler Furnace	298.57	14.74	14.93
Water System	1675.71	7.08	83.79
Compressor	284.29	6.28	14.21
Pressure Washer	492.14	4.03	56.60
Fuel Tank	559.29	16.16	27.96
Blower	560.57	7.29	28.03
Scale	325.29	16.10	16.26
Barrel	294.29	4.85	14.71
Barrel Loader	507.14	6.27	25.36
Cart	289.29	17.85	14.46
Fencer/Shocker	1170.71	8.07	58.54
Shop Tool	2072.71	19.65	238.36
Stapler	604.29	6.44	30.21
Office Equipment	904.29	6.83	45.21
Lawn-mower	2251.71	7.21	258.95
Over-wintering Insulation	4384.86	5.17	876.97
Miscellaneous	6626.57	9.30	331.33
SUB-TOTAL	161426.81		10841.37
Vehicle #1	8994.29	10.53	1034.34
Vehicle #2	5994.29	8.69	689.34
Vehicle #3	8535.71	11.11	981.61
Vehicle #4	2978.57	5.36	342.54
SUB-TOTAL	26502.86		3047.82
TOTAL INVESTMENT	278386.12		18210.83

TABLE 8
HONEY PRODUCTION COSTS AND RETURNS
PEACE RIVER REGION, 1990

	NUMBER OF HIVES		747.11	
	AVERAGE YIELD PER HIVE (LBS)		191.74	
	POUNDS HONEY PRODUCED		143252.62	
			TOTAL	PER HIVE	PER POUND PRODUCED
			---------- $ ----------		
	BULK HONEY SALES	107003.00 lbs.	62268.89	83.35	
	CONSUMER PACK SALES	1021.11 lbs.	715.89	0.96	
	OTHER HONEY SALES	788.33 lbs.	463.45	0.62	
	HONEY HELD IN INVENTORY	34440.22 lbs.	21105.57	28.25	
	WAX SALES		2322.80	3.11	
	POLLEN SALES		2192.03	2.93	
	CROP INSURANCE RECEIPTS		2103.48	2.82	
	MISCELLANEOUS INCOME		3811.67	5.10	
	less HONEY PURCHASE FOR RESALE (-)				
A.	TOTAL VALUE OF PRODUCTION		94983.75	127.13	0.66
B.	CASH COSTS:				
	BEE PURCHASE - (Package Bees)				
	BEE PURCHASE - (Queens)		2334.44	3.12	
	FREIGHT		751.00	1.01	
	FEED - Sugar	42158.55 lbs.	14830.00	19.85	
	MEDICINE/ICING SUGAR		701.00	0.94	
	CYANOGAS/BEE REPELLENT		64.22	0.09	
	BLDG./EQUIP. REPAIR & MAINT.		3785.00	5.07	
	BLDG./EQUIP. INSURANCE		1916.56	2.57	
	HEATING FUEL		1241.00	1.66	
	UTILITIES		2379.44	3.18	
	MACHINE FUEL/REPAIRS		6224.44	8.33	
	VEHICLE INSURANCE/REGISTRATION		1216.56	1.63	
	OTHER INSURANCE - Product		268.33	0.36	
	- Crop		2479.33	3.32	
	PROPERTY AND BUSINESS TAX		553.67	0.74	
	LABELS/TAGS/CONTAINERS		387.56	0.52	
	SMALL TOOLS/H'WARE/OFF. SUPPLIES		3078.00	4.12	
	PROMOTION/MKTG./ASSOC. FEES		2033.44	2.72	
	ACCOUNTING/LEGAL		982.56	1.32	
	FORAGE ACCESS		616.11	0.82	
	CUSTOM WORK/LEASES		1078.11	1.44	
	HIRED LABOUR	3201.56 hours	21207.89	28.39	
	MISCELLANEOUS		1035.89	1.39	
	OPERATING INTEREST PAID		2344.78	3.14	
	TOTAL CASH COSTS		71509.31	95.71	0.50
	PLUS:				
	OPERATOR LABOUR	2037.11 hours	15278.33	20.45	
	FAMILY LABOUR	248.33 hours	1241.67	1.66	
	TOTAL VARIABLE COST		88029.31	117.83	0.61
C.	CAPITAL COSTS :				
	DEPRECIATION - Buildings		4664.44	6.24	
	- Bee Equipment		10082.01	13.49	
	- Vehicles		2218.37	2.97	
	CAPITAL INTEREST PAID		7002.22	9.37	
	TOTAL CAPITAL COST		23967.03	32.08	0.17
	TOTAL PRODUCTION COST		111996.31	149.91	0.78
D.	MANAGEMENT INDICATORS:				
	RETURN OVER CASH COSTS		23474.43	31.42	
	RETURN TO EQUITY		-17012.59	-22.77	
	RETURN TO INVESTMENT		-10010.37	-13.40	

TABLE 9
APIARY ENTERPRISE INVESTMENT
PEACE RIVER REGION
1990

INVESTMENT ITEMS:

		TOTAL	PER HIVE
		------- $	-------
LAND	10.00 acres	4825.55	6.46
BUILDINGS		93288.87	124.87
BEE EQUIPMENT		149594.75	200.23
MACHINERY		19290.22	25.82
TOTAL INVESTMENT		266999.44	357.38
TOTAL EQUITY	71.26 %	190265.00	254.67

BREAK-DOWN OF INVESTMENT:

	ENTERPRISE VALUE ($)	AGE (YEARS)	DEPRECIATION ($)
Land	4825.55	---	---
SUB-TOTAL	4825.55	---	---
Building #1	42888.89	14.49	2144.44
Building #2	9805.55	11.87	490.28
Building #3	6933.33	16.06	346.67
Building #4 - Wintering	17700.00	6.98	885.00
Building #5 - House (25 %)	15961.11	15.33	798.05
SUB-TOTAL	93288.87		4664.44
Hives	79980.50	11.42	3999.02
Pallet	3050.00	7.06	350.75
Fork-Lift	10744.44	9.11	913.28
Hive-Feeder	5875.00	4.51	1175.00
Super Elevator	22.22	16.00	1.11
Uncapping Machine	2654.44	6.01	132.72
Honey Extractor	4990.00	10.32	249.50
Dryer/Heat Exchanger	122.22	11.82	6.11
Wax Spinner/Seperator	3666.67	8.59	183.33
Pump & Motor	808.00	5.58	92.92
Honey Tank/Pipe	2136.11	12.75	106.81
Feed Tank	1277.78	5.24	63.89
Storage Vessel	66.67	10.00	3.33
Boiler Furnace	778.33	6.25	38.92
Water System	1025.00	5.51	51.25
Compressor	255.00	8.27	12.75
Pressure Washer	202.33	4.17	23.27
Fuel Tank	878.33	8.90	43.92
Blower	472.22	5.37	23.61
Scale	903.56	6.66	45.18
Barrel	2633.78	1.95	131.69
Barrel Loader	288.33	5.81	14.42
Cart	319.33	12.40	15.97
Fencer/Shocker	2883.56	8.45	144.18
Shop Tool	2877.56	10.11	330.92
Stapler	531.44	9.87	26.57
Office Equipment	1575.56	5.34	78.78
Lawn-mower	803.00	4.69	92.34
Over-wintering Insulation	5612.22	6.76	1122.44
Miscellaneous	12161.11	13.31	608.05
SUB-TOTAL	149594.75		10082.01
Vehicle #1	6922.22	9.22	796.05
Vehicle #2	4401.11	10.07	506.13
Vehicle #3	4944.44	10.87	568.61
Vehicle #4	3022.44	7.13	347.58
SUB-TOTAL	19290.22		2218.37
TOTAL INVESTMENT	266999.44		16964.81

SECTION IV

Honey Production Costs and Returns By Size of Operation

The study sample of 27 apiarists was further divided into four groups by size of operation. The main objective of analyzing the data by size of operation was to study the economics of scales, i.e., whether the size of operation had any effect on net returns. Following are the groups by size of operation.

Group	Size of Operation	Number of Participants	Average Number of Hives
IV	Up to 300 hives	7	163
V	301 to 600 hives	8	448
VI	601 to 1,000 hives	6	762
VII	Over 1,000 hives	6	1,678
		27	

Group IV (up to 300 hives):

Table 10 presents the results for study participants in Group IV, i.e., up to 300 hives. The number of hives per average study participants for this group were 163. Average yield for the group was 145 pounds per hive. Total value of production per average honey producer for this group was $101 per hive or $0.69 per pound.

Cash Costs:

Average cash costs for the smallest group of honey producers; i.e., under 300 hives, are presented in Table 10. These costs amounted to $63 per hive and $0.43 per pound of honey produced in 1990.

Average operator and family labour charges for this group (IV) were $38 per hive or $0.26 per pound. When operator and family labour costs were added to cash costs, average total variable cost amounted to $100 per hive or $0.69 per pound of honey produced.

TABLE 10
HONEY PRODUCTION COSTS AND RETURNS
BY SIZE OF OPERATION, 1990
(UP TO 300 HIVES)

	NUMBER OF HIVES		162.86	
	AVERAGE YIELD PER HIVE (LBS)		145.35	
	POUNDS HONEY PRODUCED		23671.00	
			TOTAL	PER HIVE	PER POUND PRODUCED
			---------- $ ----------	
	BULK HONEY SALES	17900.86 lbs.	9687.24	59.48	
	CONSUMER PACK SALES	1371.86 lbs.	1179.36	7.24	
	OTHER HONEY SALES	410.00 lbs.	349.57	2.15	
	HONEY HELD IN INVENTORY	3988.29 lbs.	2578.77	15.83	
	WAX SALES		292.43	1.80	
	POLLEN SALES		1307.14	8.03	
	CROP INSURANCE RECEIPTS		152.61	0.94	
	MISCELLANEOUS INCOME		823.00	5.05	
	less HONEY PURCHASE FOR RESALE (-)				
A.	TOTAL VALUE OF PRODUCTION		16370.11	100.52	0.69
B.	CASH COSTS:				
	BEE PURCHASE - (Package Bees)				
	BEE PURCHASE - (Queens)		321.50	1.97	
	FREIGHT		471.43	2.89	
	FEED - Sugar	3703.00 lbs.	1689.57	10.37	
	MEDICINE/ICING SUGAR		102.00	0.63	
	CYANOGAS/BEE REPELLENT		36.29	0.22	
	BLDG./EQUIP. REPAIR & MAINT.		883.71	5.43	
	BLDG./EQUIP. INSURANCE		331.57	2.04	
	HEATING FUEL		264.93	1.63	
	UTILITIES		433.57	2.66	
	MACHINE FUEL/REPAIRS		1495.71	9.18	
	VEHICLE INSURANCE/REGISTRATION		675.29	4.15	
	OTHER INSURANCE - Product		135.86	0.83	
	- Crop		76.14	0.47	
	PROPERTY AND BUSINESS TAX		240.14	1.47	
	LABELS/TAGS/CONTAINERS		475.71	2.92	
	SMALL TOOLS/H'WARE/OFF. SUPPLIES		327.00	2.01	
	PROMOTION/MKTG./ASSOC. FEES		231.43	1.42	
	ACCOUNTING/LEGAL		150.57	0.92	
	FORAGE ACCESS		144.29	0.89	
	CUSTOM WORK/LEASES		80.14	0.49	
	HIRED LABOUR	238.57 hours	1339.29	8.22	
	MISCELLANEOUS		175.71	1.08	
	OPERATING INTEREST PAID		169.29	1.04	
	TOTAL CASH COSTS		10251.14	62.95	0.43
	PLUS:				
	OPERATOR LABOUR	795.43 hours	5965.71	36.63	
	FAMILY LABOUR	28.57 hours	142.86	0.88	
	TOTAL VARIABLE COST		16359.71	100.45	0.69
C.	CAPITAL COSTS :				
	DEPRECIATION - Buildings		1384.64	8.50	
	- Bee Equipment		2374.24	14.58	
	- Vehicles		786.93	4.83	
	CAPITAL INTEREST PAID		1304.00	8.01	
	TOTAL CAPITAL COST		5849.81	35.92	0.25
	TOTAL PRODUCTION COST		22209.51	136.37	0.94
D.	MANAGEMENT INDICATORS:				
	RETURN OVER CASH COSTS		6118.98	37.57	
	RETURN TO EQUITY		-5839.40	-35.86	
	RETURN TO INVESTMENT		-4535.40	-27.85	

Capital Costs:

Depreciation for buildings, bee equipment and vehicles, and capital interest paid by the seven apiarists in Group IV amounted to $5,850 ($36 per hive) or $0.25 per pound per honey produced.

Total Production Cost:

Average total production cost for the study participants (up to 300 hives) was estimated at $22,210 for a honey operation with 163 hives. Production cost per hive and per pound of honey produced was the highest for this group of beekeepers at $136 and $0.94 respectively.

Management Indicators:

Average return over cash costs for Group IV participants was $38 per hive, the lowest return among the four groups (by size of operation). Return to equity and investment were negative by $36 and $28 per hive, respectively. Details on cash costs, operator and family labour, and capital costs are given in Table 10.

Investment Costs:

Average total investment for honey producers in the up to 300 hives group was $72,440 per operation or $445 per hive. Average equity for this group was over 80 per cent of the total investment. Table 11 presents details on land, buildings, bee equipment and machinery (vehicles) investments for Group IV in 1990.

Group V (301 to 600 hives):

Average number of hives for this group (8 beekeepers) was 448 hives, with an average production of 154 pounds per hive. Table 12 presents total value of production (bulk honey sales, consumer pack sales, other honey sales, honey held in inventory, wax sales, insurance receipts, miscellaneous income, and less honey purchased for resale) which amounted to $41,510 per average apiarist, and $93 per hive or $0.60 per pound of honey produced.

Cash Costs:

Cash costs for this group were estimated at $68 per hive ($0.44 per pound), during the 1990 honey production year. Average operator and family labour charges were $34 per hive or $0.22 per pound of honey produced. When cash costs were combined with the operator and

TABLE 11
APIARY ENTERPRISE INVESTMENT
BY SIZE OF OPERATION, 1990
(UP TO 300 HIVES)

INVESTMENT ITEMS:

		TOTAL	PER HIVE
		------- $ -------	
LAND	3.58 acres	2287.14	14.04
BUILDINGS		27692.86	170.04
BEE EQUIPMENT		35617.07	218.70
MACHINERY		6842.86	42.02
TOTAL INVESTMENT		72439.87	444.81
TOTAL EQUITY	81.41 %	58972.92	362.11

BREAK-DOWN OF INVESTMENT:

	ENTERPRISE VALUE ($)	AGE (YEARS)	DEPRECIATION ($)
Land	2287.14	---	---
SUB-TOTAL	2287.14	---	---
Building #1	16442.86	10.49	822.14
Building #2	2971.43	6.58	148.57
Building #3	185.71	6.62	9.29
Building #4 - Wintering	2142.86	15.00	107.14
Building #5 - House (25 %)	5950.00	17.41	297.50
SUB-TOTAL	27692.86		1384.64
Hives	18714.29	9.71	935.71
Pallet	1220.00	8.98	140.30
Fork-Lift	285.71	7.00	24.29
Hive-Feeder	844.07	8.35	168.81
Super Elevator	100.00	3.57	5.00
Uncapping Machine	2178.57	4.67	108.93
Honey Extractor	1771.43	16.90	88.57
Dryer/Heat Exchanger	100.00	10.00	5.00
Wax Spinner/Seperator	178.57	7.76	8.93
Pump & Motor	253.57	11.97	29.16
Honey Tank/Pipe	614.29	16.30	30.71
Feed Tank	385.71	6.80	19.29
Storage Vessel	428.57	5.20	21.43
Boiler Furnace	200.00	9.96	10.00
Water System	228.57	5.37	11.43
Compressor	154.29	5.17	7.71
Pressure Washer	32.14	6.44	3.70
Fuel Tank	203.57	6.65	10.18
Blower	1175.00	4.30	58.75
Scale	182.14	15.90	9.11
Barrel	77.14	6.28	3.86
Barrel Loader	28.57	10.00	1.43
Cart	230.71	9.72	11.54
Fencer/Shocker	271.43	6.79	13.57
Shop Tool	1985.71	10.63	228.36
Stapler	44.29	8.34	2.21
Office Equipment	735.71	6.12	36.79
Lawn-mower	707.71	9.13	81.39
Over-wintering Insulation	1225.57	7.13	245.11
Miscellaneous	1059.71	8.87	52.99
SUB-TOTAL	35617.07		2374.24
Vehicle #1	3857.14	8.56	443.57
Vehicle #2	1471.43	13.24	169.21
Vehicle #3	928.57	6.15	106.79
Vehicle #4	585.71	2.00	67.36
SUB-TOTAL	6842.86		786.93
TOTAL INVESTMENT	72439.87		4545.81

family labour costs, average total variable cost amounted to $101 per hive or $0.66 per pound of honey produced (Table 12).

Capital Costs:

Capital costs for Group V honey producers were estimated at $34 per hive or $0.22 per pound of honey produced. Capital interest paid by this group was about $7 per hive during the 1990 production year.

Total Production Cost:

Average total production cost (cash costs, operator and family labour, and capital costs) for honey producers in the size group of 301 to 600 hives, was $60,748 per average beekeeping operation. In terms of per hive and per pound of honey produced, the average production cost for this group was $136 and $0.88, respectively.

Return over cash costs for Group V participants (301 to 600 hives) was $25 per hive or $0.16 per pound of honey produced. Return to equity was negative at $43 per hive or about $0.28 per pound of honey produced. Details on total value of production, costs and returns are given in Table 12.

Investment Cost:

Average total investment for the study participants in Group V was $194,994 per operation or $435 per hive, marginally lower than Group IV study participants ($445 per hive). Land area associated with the honey operation for this group was about seven acres, valued at $4,509 or $655 per acre ($10.06 per hive). Market value for buildings was $63,326 per average honey production operation or $141 per hive in Group V (Table 13). Bee equipment investment for this group was estimated at $106,688 per operation or $238 per hive. Average investment for vehicles was $20,471 per operation or $46 per hive. Details on land, buildings, bee equipment, and machinery (vehicles) are presented in Table 13.

Group VI (601 to 1000 hives):

The number of honey producers surveyed in 1990 in the 601 to 1000 hives group was six. Number of hives per average honey producer in this group was 763 (Table 14). Average yield per hive for Group VI participants was 186 pounds, thereby producing 141,988 pounds of honey during the 1990 production year.

TABLE 12
HONEY PRODUCTION COSTS AND RETURNS
BY SIZE OF OPERATION, 1990
(301 – 600 HIVES)

	NUMBER OF HIVES		448.00	
	AVERAGE YIELD PER HIVE (LBS)		154.33	
	POUNDS HONEY PRODUCED		69138.37	
			TOTAL	PER HIVE	PER POUND PRODUCED
			---------- $ ----------	
	BULK HONEY SALES	53318.87 lbs.	28009.55	62.52	
	CONSUMER PACK SALES	5440.25 lbs.	5379.75	12.01	
	OTHER HONEY SALES	3022.50 lbs.	1925.82	4.30	
	HONEY HELD IN INVENTORY	7356.75 lbs.	4332.92	9.67	
	WAX SALES		504.25	1.13	
	POLLEN SALES				
	CROP INSURANCE RECEIPTS		4859.00	10.85	
	MISCELLANEOUS INCOME		2008.87	4.48	
	less HONEY PURCHASE FOR RESALE (-)		5510.00	12.30	
A.	TOTAL VALUE OF PRODUCTION		41510.17	92.66	0.60
B.	CASH COSTS:				
	BEE PURCHASE - (Package Bees)				
	BEE PURCHASE - (Queens)		903.62	2.02	
	FREIGHT				
	FEED - Sugar	22502.00 lbs.	6402.37	14.29	
	MEDICINE/ICING SUGAR		225.25	0.50	
	CYANOGAS/BEE REPELLENT		158.75	0.35	
	BLDG./EQUIP. REPAIR & MAINT.		824.25	1.84	
	BLDG./EQUIP. INSURANCE		1284.87	2.87	
	HEATING FUEL		730.00	1.63	
	UTILITIES		1668.00	3.72	
	MACHINE FUEL/REPAIRS		3285.00	7.33	
	VEHICLE INSURANCE/REGISTRATION		626.62	1.40	
	OTHER INSURANCE - Product		174.25	0.39	
	- Crop		1055.25	2.36	
	PROPERTY AND BUSINESS TAX		180.69	0.40	
	LABELS/TAGS/CONTAINERS		485.12	1.08	
	SMALL TOOLS/H'WARE/OFF. SUPPLIES		1840.37	4.11	
	PROMOTION/MKTG./ASSOC. FEES		557.62	1.24	
	ACCOUNTING/LEGAL		576.37	1.29	
	FORAGE ACCESS		517.12	1.15	
	CUSTOM WORK/LEASES		532.50	1.19	
	HIRED LABOUR	1206.87 hours	6783.25	15.14	
	MISCELLANEOUS		729.75	1.63	
	OPERATING INTEREST PAID		727.00	1.62	
	TOTAL CASH COSTS		30268.06	67.56	0.44
	PLUS:				
	OPERATOR LABOUR	1807.12 hours	13553.44	30.25	
	FAMILY LABOUR	297.50 hours	1487.50	3.32	
	TOTAL VARIABLE COST		45309.00	101.14	0.66
C.	CAPITAL COSTS :				
	DEPRECIATION - Buildings		3166.28	7.07	
	- Bee Equipment		6972.98	15.56	
	- Vehicles		2354.19	5.25	
	CAPITAL INTEREST PAID		2945.12	6.57	
	TOTAL CAPITAL COST		15438.57	34.46	0.22
	TOTAL PRODUCTION COST		60747.55	135.60	0.88
D.	MANAGEMENT INDICATORS:				
	RETURN OVER CASH COSTS		11242.12	25.09	
	RETURN TO EQUITY		-19237.37	-42.94	
	RETURN TO INVESTMENT		-16292.24	-36.37	

TABLE 13
APIARY ENTERPRISE INVESTMENT
BY SIZE OF OPERATION, 1990
(301 - 600 HIVES)

INVESTMENT ITEMS:

		TOTAL	PER HIVE
		------- $	-------
LAND	6.88 acres	4508.75	10.06
BUILDINGS		63325.75	141.35
BEE EQUIPMENT		106688.25	238.14
MACHINERY		20471.25	45.69
TOTAL INVESTMENT		194994.00	435.25
TOTAL EQUITY	83.05 %	161941.12	361.48

BREAK-DOWN OF INVESTMENT:

	ENTERPRISE VALUE ($)	AGE (YEARS)	DEPRECIATION ($)
Land	4508.75	---	---
SUB-TOTAL	4508.75	---	---
Building #1	41375.00	10.33	2068.75
Building #2	5489.37	12.29	274.47
Building #3	2267.62	17.23	113.38
Building #4 - Wintering	1018.75	3.06	50.94
Building #5 - House (25 %)	13175.00	15.12	658.75
SUB-TOTAL	63325.75		3166.28
Hives	57056.25	14.54	2852.81
Pallet	1928.00	7.16	221.72
Fork-Lift	6587.50	4.81	559.94
Hive-Feeder	2971.87	4.08	594.37
Super Elevator	118.75	9.42	5.94
Uncapping Machine	2381.25	7.52	119.06
Honey Extractor	4996.25	13.00	249.81
Dryer/Heat Exchanger	106.25	12.00	5.31
Wax Spinner/Seperator	2171.12	10.21	108.56
Pump & Motor	664.00	7.21	76.36
Honey Tank/Pipe	1615.00	9.87	80.75
Feed Tank	885.00	5.93	44.25
Storage Vessel	1643.75	2.64	82.19
Boiler Furnace	2047.50	5.99	102.37
Water System	2087.50	6.52	104.37
Compressor	358.75	7.11	17.94
Pressure Washer	148.75	2.00	17.11
Fuel Tank	778.75	11.28	38.94
Blower	339.87	5.97	16.99
Scale	752.12	13.19	37.61
Barrel	1755.75	5.34	87.79
Barrel Loader	341.87	4.56	17.09
Cart	343.75	11.09	17.19
Fencer/Shocker	1925.37	6.14	96.27
Shop Tool	6413.62	7.00	737.56
Stapler	796.25	7.46	39.81
Office Equipment	822.50	5.28	41.12
Lawn-mower	856.50	2.62	98.50
Over-wintering Insulation	2076.87	7.17	415.37
Miscellaneous	1717.50	6.33	85.87
SUB-TOTAL	106688.25		6972.98
Vehicle #1	7120.00	7.88	818.80
Vehicle #2	4382.50	11.20	503.99
Vehicle #3	7156.25	11.16	822.97
Vehicle #4	1812.50	10.97	208.44
SUB-TOTAL	20471.25		2354.19
TOTAL INVESTMENT	194994.00		12493.45

Average value of production which included bulk honey sales, consumer pack sales, other honey sales, honey held in inventory, wax and pollen sales, insurance receipts, miscellaneous income, less honey purchase for resale was $94,881 per apiarist in 1990. In terms of value of production per hive and per pound of honey produced, the gross return was $124 and $0.67, respectively.

Cash Costs:

Cash costs (out-of-pocket costs) for this group of participants (601 to 1000 hives) were estimated at $81 per hive or $0.44 per pound of honey produced. Operator and family labour costs were estimated at $26 per hive, thus bringing the total variable cost to $107 per hive ($0.58 per pound of honey produced).

Capital Costs:

Capital costs for this group amounted to $36 per hive or $0.19 per pound of honey produced. Average capital interest paid was $15 per hive, followed by bee equipment at $13 per hive. Details on the various capital cost items are given in Table 14.

Total Production Costs:

For the six participants in the 601 to 1,000 hives operation, total production cost was estimated at $144 per hive or $0.77 per pound of honey produced. Return over cash costs for this group was $43 per hive ($0.23 per pound of honey produced). Returns to equity and investment were negative by $19 and $5 per hive, respectively. Details on value of production, cash costs, capital costs, and total production cost are shown in Table 14.

Investment and Investment Costs:

Details of investment for land, buildings, bee equipment, and machinery (vehicles) for the study participants in Group VI are presented in Table 15. Average investment per hive was $342 in 1990. Of which $181 was for the bee equipment, $128 for buildings, $22 for machinery (vehicles) and $11 for land per hive.

Group VII (over 1,000 hives):

This group represents the largest honey producers surveyed in 1990. Average number of hives for the six study participants in this group (over 1,000 hives) was 1,678 hives. Average yield per hive, i.e., honey produced per hive was 192 pounds in 1990 (Table 16).

TABLE 14
HONEY PRODUCTION COSTS AND RETURNS
BY SIZE OF OPERATION, 1990
(601 – 1,000 HIVES)

NUMBER OF HIVES		762.50	
AVERAGE YIELD PER HIVE (LBS)		186.21	
POUNDS HONEY PRODUCED		141988.00	

		TOTAL	PER HIVE	PER POUND PRODUCED
		---------- $ ----------		
BULK HONEY SALES	95157.12 lbs.	52673.30	69.08	
CONSUMER PACK SALES	2065.00 lbs.	1513.33	1.98	
OTHER HONEY SALES	1132.50 lbs.	652.67	0.86	
HONEY HELD IN INVENTORY	43633.33 lbs.	26804.47	35.15	
WAX SALES		1608.78	2.11	
POLLEN SALES		1888.05	2.48	
CROP INSURANCE RECEIPTS		5340.16	7.00	
MISCELLANEOUS INCOME		4400.16	5.77	
less HONEY PURCHASE FOR RESALE (-)				
A. TOTAL VALUE OF PRODUCTION		94880.87	124.43	0.67
B. CASH COSTS:				
BEE PURCHASE - (Package Bees)				
BEE PURCHASE - (Queens)		1493.17	1.96	
FREIGHT		576.50	0.76	
FEED - Sugar	36168.50 lbs.	14706.00	19.29	
MEDICINE/ICING SUGAR		203.33	0.27	
CYANOGAS/BEE REPELLENT		78.00	0.10	
BLDG./EQUIP. REPAIR & MAINT.		4225.66	5.54	
BLDG./EQUIP. INSURANCE		1695.00	2.22	
HEATING FUEL		465.83	0.61	
UTILITIES		2044.00	2.68	
MACHINE FUEL/REPAIRS		5808.66	7.62	
VEHICLE INSURANCE/REGISTRATION		1277.17	1.67	
OTHER INSURANCE - Product		746.00	0.98	
- Crop		1752.50	2.30	
PROPERTY AND BUSINESS TAX		220.50	0.29	
LABELS/TAGS/CONTAINERS		581.33	0.76	
SMALL TOOLS/H'WARE/OFF. SUPPLIES		1652.33	2.17	
PROMOTION/MKTG./ASSOC. FEES		1872.67	2.46	
ACCOUNTING/LEGAL		1560.33	2.05	
FORAGE ACCESS		969.17	1.27	
CUSTOM WORK/LEASES		1350.00	1.77	
HIRED LABOUR	2399.50 hours	15407.83	20.21	
MISCELLANEOUS		453.33	0.59	
OPERATING INTEREST PAID		2917.83	3.83	
TOTAL CASH COSTS		62057.16	81.39	0.44
PLUS:				
OPERATOR LABOUR	2392.83 hours	17946.25	23.54	
FAMILY LABOUR	366.67 hours	1833.33	2.40	
TOTAL VARIABLE COST		81836.75	107.33	0.58
C. CAPITAL COSTS :				
DEPRECIATION - Buildings		4890.41	6.41	
- Bee Equipment		9767.34	12.81	
- Vehicles		1957.14	2.57	
CAPITAL INTEREST PAID		11053.33	14.50	
TOTAL CAPITAL COST		27668.22	36.29	0.19
TOTAL PRODUCTION COST		109504.94	143.61	0.77
D. MANAGEMENT INDICATORS:				
RETURN OVER CASH COSTS		32823.74	43.05	
RETURN TO EQUITY		-14624.03	-19.18	
RETURN TO INVESTMENT		-3570.70	-4.68	

TABLE 15
APIARY ENTERPRISE INVESTMENT
BY SIZE OF OPERATION, 1990
(601 – 1,000 HIVES)

INVESTMENT ITEMS:

		TOTAL	PER HIVE
		------- $	-------
LAND	13.17 acres	8315.00	10.90
BUILDINGS		97808.31	128.27
BEE EQUIPMENT		137982.50	180.96
MACHINERY		17018.66	22.32
TOTAL INVESTMENT		261124.50	342.46
TOTAL EQUITY	55.74 %	145562.12	190.90

F. BREAK-DOWN OF INVESTMENT:

	ENTERPRISE VALUE ($)	AGE (YEARS)	DEPRECIATION ($)
Land	8315.00	---	---
SUB-TOTAL	8315.00	---	---
Building #1	47708.33	8.21	2385.41
Building #2	10125.00	13.09	506.25
Building #3	650.00	20.46	32.50
Building #4 - Wintering	5633.33	13.54	281.67
Building #5 - House (25 %)	33691.66	9.94	1684.58
SUB-TOTAL	97808.31		4890.41
Hives	66436.62	13.34	3321.83
Pallet	3700.00	6.13	425.50
Fork-Lift	8083.33	11.55	687.08
Hive-Feeder	4533.33	4.82	906.67
Super Elevator	166.67	13.60	8.33
Uncapping Machine	3281.67	7.32	164.08
Honey Extractor	3745.00	14.25	187.25
Dryer/Heat Exchanger			
Wax Spinner/Seperator	2770.83	11.19	138.54
Pump & Motor	923.67	4.77	106.22
Honey Tank/Pipe	1908.33	15.00	95.42
Feed Tank	1243.33	6.81	62.17
Storage Vessel	100.00	10.00	5.00
Boiler Furnace	595.83	5.58	29.79
Water System	1970.83	6.80	98.54
Compressor	324.17	7.84	16.21
Pressure Washer	188.50	5.05	21.68
Fuel Tank	637.50	12.62	31.87
Blower	611.67	5.70	30.58
Scale	286.17	15.87	14.31
Barrel	2456.33	3.10	122.82
Barrel Loader	601.67	8.21	30.08
Cart	353.17	12.82	17.66
Fencer/Shocker	1563.33	10.76	78.17
Shop Tool	2899.67	11.03	333.46
Stapler	415.50	8.87	20.77
Office Equipment	1233.33	7.16	61.67
Lawn-mower	985.33	4.96	113.31
Over-wintering Insulation	8933.33	6.74	1786.67
Miscellaneous	17033.33	14.11	851.67
SUB-TOTAL	137982.50		9767.34
Vehicle #1	5566.66	9.34	640.17
Vehicle #2	3835.00	10.72	441.02
Vehicle #3	3333.33	10.10	383.33
Vehicle #4	4283.66	5.29	492.62
SUB-TOTAL	17018.66		1957.14
TOTAL INVESTMENT	261124.50		16614.88

Almost all of the honey produced by this group was sold as bulk honey. Less than one per cent of the honey produced by these producers was sold in consumer packs and held in inventory. Total value of production for Group VII participants was $199,040 or $119 per hive. Average value per pound of honey produced was $0.61 for this group. Details are presented in Table 16.

Cash Costs:

Cash costs for the largest group of honey producers were estimated at $76 per hive or $0.39 per pound of honey produced. The most significant cash cost items for this group were hired labour, followed by sugar for feeding the bees, and machine fuel and repairs.

Operator and family labour amounted to $12 per hive for this group. When operator and family labour costs were added to cash costs, the variable cost per average apiarist in this group amounted to $88 per hive or $0.46 per pound of honey produced.

Capital Costs:

Capital costs (depreciation for buildings, bee equipment, vehicles and capital interest paid) for Group VII participants were calculated to be $22 per hive or $0.11 per pound of honey produced. This group of participants had the lowest capital interest paid among the four groups analyzed by the size of beekeeping operation. Bee equipment capital cost was $10 per hive.

Total Production Cost:

Average total production cost for the largest group of honey producers (Group VII) amounted to $110 per hive for a 1,678 hive operation. In terms of per pound of honey produced, the cost was $0.57 in 1990. Cash costs for an average honey operation in this group were about 70 per cent of the total production costs. Operator and family labour made up to 10 per cent of the total production costs and the balance (20%) were the capital costs.

Return to cash costs was $43 per hive for the Group VII participants. Return to equity and investment were also positive by $9 and $13 per hive, respectively. Details on cash costs, operator and family costs, capital costs and total production cost are presented in Table 16.

Investment Cost:

Investment and investment costs for the group of producers in the over 1,000 hives category are shown in Table 18. Land area associated with the beekeeping operations was over

8 acres, valued at $6,857 or $824 per acre. Investment in land per hive was $4.00. Average buildings investment amounted to $89 per hive, whereas investment in bee equipment was $161 per hive. Investment in vehicles was $23 per hive. Total investment for Group VII participants amounted to $466,883 or $278 per hive. Details on all investment items are presented in Table 17.

TABLE 16
HONEY PRODUCTION COSTS AND RETURNS
BY SIZE OF OPERATION, 1990
(OVER 1,000 HIVES)

NUMBER OF HIVES		1678.00	
AVERAGE YIELD PER HIVE (LBS)		192.49	
POUNDS HONEY PRODUCED		323000.81	

		TOTAL	PER HIVE	PER POUND PRODUCED
		---------- $ ----------		
BULK HONEY SALES	320602.31 lbs.	169947.56	101.28	
CONSUMER PACK SALES	2065.17 lbs.	1711.91	1.02	
OTHER HONEY SALES	lbs.			
HONEY HELD IN INVENTORY	333.33 lbs.	266.67	0.16	
WAX SALES		5886.16	3.51	
POLLEN SALES				
CROP INSURANCE RECEIPTS		11714.83	6.98	
MISCELLANEOUS INCOME		9513.66	5.67	
less HONEY PURCHASE FOR RESALE (-)				
A. TOTAL VALUE OF PRODUCTION		199040.81	118.62	0.62
B. CASH COSTS:				
BEE PURCHASE - (Package Bees)				
BEE PURCHASE - (Queens)		3348.50	2.00	
FREIGHT		466.67	0.28	
FEED - Sugar	74693.31 lbs.	22208.00	13.23	
MEDICINE/ICING SUGAR		2934.83	1.75	
CYANOGAS/BEE REPELLENT		783.33	0.47	
BLDG./EQUIP. REPAIR & MAINT.		4968.66	2.96	
BLDG./EQUIP. INSURANCE		4792.00	2.86	
HEATING FUEL		1374.00	0.82	
UTILITIES		3136.67	1.87	
MACHINE FUEL/REPAIRS		15862.16	9.45	
VEHICLE INSURANCE/REGISTRATION		1110.67	0.66	
OTHER INSURANCE - Product		354.17	0.21	
- Crop		6322.66	3.77	
PROPERTY AND BUSINESS TAX		593.33	0.35	
LABELS/TAGS/CONTAINERS		811.33	0.48	
SMALL TOOLS/H'WARE/OFF. SUPPLIES		10679.50	6.36	
PROMOTION/MKTG./ASSOC. FEES		2099.67	1.25	
ACCOUNTING/LEGAL		1404.17	0.84	
FORAGE ACCESS		1085.83	0.65	
CUSTOM WORK/LEASES		983.33	0.59	
HIRED LABOUR	5161.83 hours	37691.33	22.46	
MISCELLANEOUS		2283.83	1.36	
OPERATING INTEREST PAID		2119.33	1.26	
TOTAL CASH COSTS		127414.00	75.93	0.39
PLUS:				
OPERATOR LABOUR	2443.33 hours	18325.00	10.92	
FAMILY LABOUR	479.17 hours	2395.83	1.43	
TOTAL VARIABLE COST		148134.81	88.28	0.46
C. CAPITAL COSTS :				
DEPRECIATION - Buildings		7502.70	4.47	
- Bee Equipment		17565.28	10.47	
- Vehicles		4508.95	2.69	
CAPITAL INTEREST PAID		6683.83	3.98	
TOTAL CAPITAL COST		36260.76	21.61	0.11
TOTAL PRODUCTION COST		184395.50	109.89	0.57
D. MANAGEMENT INDICATORS:				
RETURN OVER CASH COSTS		71626.81	42.69	
RETURN TO EQUITY		14645.24	8.73	
RETURN TO INVESTMENT		21329.07	12.71	

TABLE 17
APIARY ENTERPRISE INVESTMENT
BY SIZE OF OPERATION, 1990
(OVER 1,000 HIVES)

INVESTMENT ITEMS:

		TOTAL	PER HIVE
		------- $	-------
LAND	8.32 acres	6856.66	4.09
BUILDINGS		150054.12	89.42
BEE EQUIPMENT		270864.31	161.42
MACHINERY		39208.33	23.37
TOTAL INVESTMENT		466983.31	278.30
TOTAL EQUITY	79.70 %	372182.00	221.80

BREAK-DOWN OF INVESTMENT:

	ENTERPRISE VALUE ($)	AGE (YEARS)	DEPRECIATION ($)
Land	6856.66	---	---
SUB-TOTAL	6856.66	---	---
Building #1	73054.12	15.09	3652.70
Building #2	28375.00	10.46	1418.75
Building #3	10000.00	16.33	500.00
Building #4 - Wintering	22958.33	4.97	1147.92
Building #5 - House (25 %)	15666.66	13.01	783.33
SUB-TOTAL	150054.12		7502.70
Hives	168791.62	9.81	8439.58
Pallet	4092.67	2.92	470.66
Fork-Lift	20316.66	9.14	1726.91
Hive-Feeder	11025.00	6.51	2205.00
Super Elevator	308.33	19.73	15.42
Uncapping Machine	3621.83	9.05	181.09
Honey Extractor	11947.83	7.29	597.39
Dryer/Heat Exchanger	383.33	13.00	19.17
Wax Spinner/Seperator	5439.16	6.94	271.96
Pump & Motor	4105.83	11.66	472.17
Honey Tank/Pipe	4104.16	14.51	205.21
Feed Tank	1102.83	7.90	55.14
Storage Vessel	600.00	15.00	30.00
Boiler Furnace	1398.33	4.28	69.92
Water System	713.33	14.42	35.67
Compressor	480.00	5.34	24.00
Pressure Washer	653.33	4.52	75.13
Fuel Tank	1023.33	11.50	51.17
Blower	526.67	6.37	26.33
Scale	1337.50	5.25	66.87
Barrel	2000.00	3.92	100.00
Barrel Loader	266.67	8.56	13.33
Cart	366.67	13.18	18.33
Fencer/Shocker	2035.83	7.10	101.79
Shop Tool	2350.00	11.63	270.25
Stapler	1500.00	8.43	75.00
Office Equipment	2538.33	6.39	126.92
Lawn-mower	2058.33	9.08	236.71
Over-wintering Insulation	5302.33	4.18	1060.46
Miscellaneous	10474.33	8.81	523.72
SUB-TOTAL	270864.31		17565.28
Vehicle #1	13566.66	7.19	1560.16
Vehicle #2	10500.00	4.44	1207.50
Vehicle #3	11416.66	6.58	1312.91
Vehicle #4	3725.00	5.65	428.37
SUB-TOTAL	39208.33		4508.95
TOTAL INVESTMENT	466983.31		29576.93

SECTION V

Summary

A summary of value of production (returns), cash costs, operator and family labour, and capital costs for the study sample is presented in Table 18. Similar information is also provided for the various groups by region and size of operation in this Table.

Average yield per hive for the study sample was 181 pounds in 1990. It ranged from 150 pounds in the Southern, south and North–Central regions to 192 pounds in the Peace River region. When yield per hive was compared among the groups by size of operation, it ranged from 145 pounds for the up to 300 hives group, to over 192 pounds for the over 1,000 hives group (Table 18).

Average total value of production (bulk honey sales, other honey sales and miscellaneous income) was $114 per hive or $0.63 per pound of honey produced for the study sample. It ranged from $94 per hive in the south and North–Central regions to $127 per hive in the Peace River region. And by size of operation, value of production ranged from $93 per hive for the 301 to 600 hives group to $124 per hive for the 601 to 1,000 hives group.

Details on cash costs (input costs, feed–sugar and hired labour), operator and family labour, capital costs are presented in Table 18 for the study sample (Alberta), the regions and by size of operation. Average total production costs were estimated at $124 per hive for the study sample. These costs ranged from $101 per hive in the north–east and North–West regions to $150 per hive in the Peace River region. By the size of operation, total production costs ranged from $110 per hive ($0.57 per pound) for the over 1,000 hive group to $136 per hive ($0.94) for the up to 300 hives group, thus exhibiting economies of scale.

Return over cash costs was positive for all groups (by regions and size of operation). Average returns to equity and investment were negative except the producers in the north–east and North–West regions and in over the 1,000 hives groups. These two groups showed positive returns at $0.05 and $0.07 to equity and investment, respectively (Table 18).

TABLE 18

A SUMMARY OF HONEY PRODUCTION COSTS AND RETURNS BY REGION AND SIZE OF OPERATION

	By Region								By Size of Operation							
	Alberta		Southern South-Central & North-Central		North-East North-West		Peace River		Up To 300 Hives		301-600 Hives		601 To 1,000 Hives		Over 1,000 Hives	
	Per Hive	Per Pound Produced	Per Hive	Per Pound Produced	Per Hive	Per Pound Produced	Per Hive	Per Pound Produced	Per Hive	Per Pound Produced	Per Hive	Per Pound Produced	Per Hive	Per Pound Produced	Per Hive	Per Pound Produced
Average Yield/Hive (lbs.)	181.17		150.31		186.6		191.74		145.35		154.33		186.21		192.49	
Bulk Honey Sales ($)	84.04	0.46	70.64	0.47	88.50	0.47	83.35	0.43	59.48	0.41	62.52	0.40	69.08	0.37	101.28	0.53
Other Honey Sales	18.52	0.11	16.17	0.11	8.12	0.04	32.94	0.17	27.02	0.18	14.81	0.10	42.58	0.23	4.69	0.02
Mis. Income	11.56	0.06	7.50	0.05	14.30	0.08	10.85	0.06	14.02	0.10	15.33	0.10	12.77	0.07	12.65	0.07
Total Value of Production ($)	114.12	0.63	94.33	0.63	110.91	0.59	127.13	0.66	100.52	0.69	92.66	0.60	124.43	0.67	118.62	0.62
CASH COSTS																
Input Costs ($)	40.48	0.22	48.51	0.32	30.03	0.16	47.47	0.25	44.36	0.30	38.13	0.25	41.89	0.23	40.24	0.21
Feed - Sugar	14.69	0.08	12.72	0.09	12.27	0.07	19.85	0.10	10.37	0.07	14.29	0.09	19.29	0.10	13.23	0.07
Hired Labour	19.74	0.11	6.29	0.04	17.29	0.09	28.39	0.10	8.22	0.06	15.14	0.10	20.21	0.11	22.46	0.11
A. Total Cash Costs ($)	74.91	0.41	67.52	0.45	59.59	0.32	95.71	0.50	62.95	0.43	67.56	0.44	81.39	0.44	75.93	0.39
B. Operator & Family Labour	20.97	0.12	26.20	0.18	19.51	0.10	22.11	0.12	37.51	0.26	33.57	0.22	25.94	0.14	12.35	0.07
C. Capital Costs	28.30	0.16	34.86	0.23	21.62	0.12	32.08	0.17	35.92	0.25	34.46	0.22	36.29	0.19	21.61	0.11
TOTAL PRODUCTION COSTS (a + b + c) ($)	124.18	0.69	128.57	0.86	100.72	0.54	149.91	0.78	136.37	0.94	135.60	0.88	143.61	0.77	109.89	0.57
RETURN OVER CASH COSTS	39.21	0.22	26.81	0.18	51.31	0.27	31.42	0.16	37.57	0.26	25.09	0.16	43.05	0.23	42.69	0.22
RETURN TO EQUITY	(10.05)	(0.06)	(34.24)	(0.23)	10.18	0.05	(22.72)	(0.12)	(35.86)	(0.25)	(42.94)	(0.28)	(19.18)	(0.10)	8.73	0.05
RETURN TO INVESTMENT	(2.87)	(0.02)	(24.20)	(0.16)	13.12	0.07	(13.40)	(0.07)	(27.85)	(0.19)	(36.37)	(0.24)	(4.68)	(0.03)	12.71	0.07
AV. INVESTMENT PER HIVE ($)	332.30	1.83	400.00	2.66	285.52	1.53	357.38	1.86	444.81	3.06	435.25	2.82	342.46	1.84	278.30	1.45